

IN THE CLAIMS:

1 - 15 (Canceled)

16. (Currently Amended) An optical parametric oscillator comprising:

~~a crystal adapted to shift energy received at a first wavelength and output said shifted energy at a second wavelength, said second wavelength being a secondary emission of energy induced by a primary emission generated from said first wavelength by said crystal~~

receive pump energy at a first wavelength,

convert said pump energy to energy at both a primary signal wavelength and a primary idler wavelength by means of a primary process, and

convert said energy at a primary signal wavelength to energy at both a second signal wavelength and second idler wavelength by means of a cascaded secondary process; and

a mechanism disposed in functional alignment with said crystal for containing said energy at a primary signal wavelength emission and enhancing said secondary emission process thereby, said mechanism including first and second mirrors, both of said mirrors being highly reflective at the said primary signal wavelength ~~of said primary emission~~, and at least one of said mirrors being at least partially transmissive to energy at said second signal wavelength.

17 – 18 (Canceled)

19. (Previously Presented) The invention of Claim 16 wherein said crystal is X cut.

20. (Previously Presented) The invention of Claim 16 wherein said crystal is Y cut.

21. (Previously Presented) The invention of Claim 16 wherein said crystal is potassium titanyl arsenate.

22. (Currently Amended) The invention of Claim 16 wherein said first wavelength is approximately 1.06 microns, said second signal wavelength is approximately 2.59 microns and said primary signal wavelength is approximately ~~emission includes energy at~~ 1.53 microns.

23. (Currently Amended) The invention of Claim 16 wherein said first wavelength is approximately 1.06 microns, said second signal wavelength is approximately 3.76 microns and said primary signal wavelength is approximately ~~emission includes energy at~~ 1.53 microns.

24. (Previously Presented) The invention of Claim 16 wherein said crystal is angle tunable.

25. (New) The invention of Claim 16 wherein both of said first and second mirrors are highly transparent at said primary idler wavelength and said secondary idler wavelength.

26. (New) The invention of Claim 16 wherein one of said first and second mirrors is highly reflective at said second signal wavelength.